The Lilongwe Central Hospital Patient Management Information System: A Success in Computer-Based Order Entry Where One Might Least Expect It

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Abstract: *Computer-based order entry is a powerful tool for enhancing patient care. A pilot project in the pediatric department of the Lilongwe Central Hospital (LCH) in Malawi, Africa has demonstrated that computer-based order entry (COE): 1) can be successfully deployed and adopted in resource-poor settings, 2) can be built, deployed and sustained at relatively low cost and with local resources, and 3) has a greater potential to improve patient care in developing than in developed countries.*

Background: LCH is an 800+ bed government hospital in Malawi's capital city, Lilongwe. A review of patient charts from the 216-bed pediatric department highlighted problems in ordering medications and laboratory investigations. A substantial number of dosage calculation errors were present in medication orders written by clinicians. Additional errors were introduced by nurses while transcribing orders from the chart onto patient treatment sheets. Additionally, incomplete and illegible documentation accompanying specimens to the lab often resulted in delayed results and unnecessary repeating of tests.

Methods: In May 2001 a custom-built computer-based Patient Management Information System (PMIS) was deployed in the LCH pediatric department. The system included 14 touchscreen-based clinical workstations that are used in real-time by clinicians as they manage patients. In February 2002 COE was added to the PMIS to facilitate the patient admission process. Functionality was limited primarily to ordering medications. To facilitate placing orders, the hospital formulary and pediatric dosing rules based on patient's weight and age were integrated into the PMIS software. In July 2002 COE was extended to include laboratory and radiology tests. Chart review was used both to measure compliance of physicians in using COE as well as the contribution of COE to improving patient care.

Results: A weekly review of patient charts over the past 4 months showed that the COE was used in more than 80% of pediatric admissions. Patients admitted through the emergency department where the COE system has not yet been installed account for the remaining admissions. The introduction of COE has eliminated errors in medication dosage calculations made by clinicians and eliminated the requirement for nurses to transcribe orders. COE of lab tests has significantly improved the completeness and legibility of documentation accompanying specimens to the lab.

Conclusion: The success of computer-based order entry at Lilongwe Central Hospital has demonstrated that a high-reliability, low-cost COE system can function in a resource-poor setting. Moreover, resource-poor settings may be the area where COE has the highest marginal utility.

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